

SUPPORT FOR THE AMENDMENT

Support for the amendment to claim 3 is found on page 5, lines 11-14 of the specification. No new matter would be added to this application by entry of this amendment.

Upon entry of this amendment, claims 1-3 and 5-17 will remain active in this application.

REQUEST FOR RECONSIDERATION

The claimed invention is directed to a water-based ink comprising an aqueous dispersion of polymer particles of a water-insoluble polymer having an alkyl group of at least 20-30 carbon atoms on its side chain and an acid value of 30-120 mgKOH/g, and a hydrophobic dye.

Applicant wishes to thank examiner Shosho for the helpful and courteous discussion held with their U.S. representative on April 24, 2006. At that time, applicant's U.S. representative argued that the secondary reference of Zhu described a binder which is separate from the colorant which is much different from the structures of the primary references. The following is intended to expand upon the discussion with the examiner.

Water-based inks have become popular for use in inkjet recording. The use of permeability controlling agents such as water-soluble organic solvents can lead to degradation of the aqueous dispersion as well as extraction of the dye from the dye-containing polymer. Accordingly, water-based inks comprising aqueous dispersions of polymer particles having good stability in the presence of a permeability controlling agent are sought.

The claimed invention addresses this problem by providing a water-based ink comprising an aqueous dispersion of polymer particles of a water-insoluble polymer having C₂₀₋₃₀ alkyl groups on its side chain and an acid value of 30-120 mgKOH/g, and a

hydrophobic dye. Applicant has discovered that such a water-insoluble polymer provides for a water-based ink of good stability. Such a water-based ink is nowhere disclosed or suggested in the cited prior art of record.

The rejections of claims 1-3, 5-6, 7-8 and 10-17 under 35 U.S.C. §103(a) over Nguyen et al., U.S. 5,990,202 in view of Zhu, U.S. 5,889,083 and of claims 1-2, 5 and 7-15 under 35 U.S.C. §103(a) over Gore et al., U.S. 2003/0055178 in view of Ishizuka et al. U.S. 2002/0025994 and Zhu, U.S. 5,889,083 are respectfully traversed.

None of the cited references disclose or suggest a polymer particle of a water-insoluble polymer having an alkyl group of at least 20-30 carbon atoms in its side chain and an acid value of 30-120 mgKOH/g.

Each of Nguyen et al. and Gore et al. describe dispersions in which the colorant is encapsulated within a polymer particle. Each reference fails to describe a polymer particle in which the polymer is a water-insoluble polymer having alkyl group and acid values as claimed.

The official action at pages 4 and 5 recognizes the deficiencies of the primary references as **failing to teach an acid number as claimed**. The official action relies on Zhu for describing a polymer possessing an acid number of from 20-500 cited in the disclosure at column 4, lines 47-54 and column 5, lines 1-7.

Applicant respectfully submits that Zhu is directed to an entirely different technology from that of the primary references such that there is no motivation to combine the teachings of the references. More specifically, Zhu describes an ink composition comprising water, a colorant, a binder resin and a wax (column 2, lines 39-40). The binder resin is a film former which upon drying of the ink leaves a film on the colorant (column 4, lines 48-50). The binder resin is **not** a water-insoluble polymer since the binder resin is described as **water soluble or water dispersible** and may form a **true solution** of a colloidal suspension

(column 4, lines 55-58 of the specification). Thus the binder resin in Zhu has a fundamentally different function from that of the polymer of the primary references in which the polymer is a matrix for the colorant. The use of a water-soluble or water dispersible binder resin provides no motivation to use such a polymer in particulate form comprising a hydrophobic dye. There would be no motivation to use the binder resin of Zhu as the matrix polymer for the primary references as the properties for binding as used by Zhu are fundamentally different from the matrix properties needed in the inks of the primary references. More pointedly, how effective would the water soluble binder resin of Zhu be as a matrix for the colorant of the primary references, when the primary references are directed to aqueous inks. There simply would be no effectiveness as the water solubility characteristics of the binder resin of Zhu would make such a resin entirely inappropriate to use as a matrix in an aqueous ink.

In contrast, the claimed invention is directed to a water-based ink comprising an aqueous dispersion of polymer particles wherein the polymer particles comprise a water-insoluble polymer having an alkyl group of 20-30 carbon atoms in its side chain and an acid value of 30-120 mgKOH/g and a hydrophobic dye. As the cited references fails to disclose or suggest a water-insoluble polymer having an acid value of 30-120 mgKOH/g, the claims are not rendered obvious by this combination of references and accordingly withdrawal of the rejections under 35 U.S.C. §103(a) is respectfully requested.

The objection to claim 3 has been obviated by appropriate amendment. Claim 3 is dependent on claim 1 which recites an alkyl group of 20-30 carbon atoms. As such the group R⁵ in claim 3 having "at least 20 carbon atoms" can not have more than 30 carbon atoms as such an interpretation would be broader than the claim from which it depends. However, in order to advance prosecution, and with the creation of any estoppel which would limit interpretation of the scope of this claim limitation under the doctrine of equivalents, applicant

Application No. 10/743,076
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has amended claim 3 to language which is more consistent with the claim language of claim

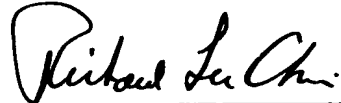
1. Such an amendment is not a narrowing of the claims for the purposes of patentability.

Entry of applicant's amendment and full consideration thereof at this stage of prosecution is respectfully requested.

Applicant submits that this application is now in condition for allowance and early notification of such action is earnestly solicited.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.
Norman F. Oblon



Richard L. Chinn, Ph.D.
Registration No. 34,305

Customer Number

22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 06/04)
RLC/rac